Installation
MANUAL

Impro Biometric Reader – HRB910, HRB911, HRB912, HRB913

ACCESS CONTROL

SABS
ISO 9001

Copyright

Revision history

Date	Description	Revision
February 2020	First Release	A.0

Contents

Introduction

Document Purpose

Install and configure the Impro Biometric Reader with guided example steps:

- Adding the IBR to the Access Portal access control system
- Adding a tagholder (person)
- Adding fingerprint templates to a tagholder.

Intended audience

Personnel who perform the following:

- Mounting and wiring of the IBR Reader/Controllers and other system hardware
- Configure and maintain the Access Portal PACS.

Related products

Access Portal hardware

Plastic modules that plug together
- **Wiegand Cluster (HCW91X)**
  - *Provides a Cluster Controller and 1, 2 or 3 Wiegand Reader modules.*
- **Wiegand Reader Module, plastic expansion module (HMW900)**
  - *Provides two x (Wiegand interface, relay, Door Position Sense, Request to Exit)*

Integrated Power Supply (IPS) Combo
- **IPS Boxed Solution (HCW93X)**
  - *Provides a Cluster Controller and 1, 2 or 3 Wiegand modules in an Integrated Power Supply housing.*
- **Wiegand Reader Module, IPS expansion module (HMW901)**
  - *Provides two x (Wiegand interface, relay, Door Position Sense, Request to Exit)*

Related material

Refer to the documents and links listed in the following table for information related to the content of this guide:

Refer to this document	For
Impro Biometric Reader Quick Start Guide (PLT-04644 – included with the IBR)	Basic installation information
Visit this URL	**For**
https://www.impro.net/software/	Access control software options ranging from free and basic up to Enterprise

IBR Specifications

The IBR is a networked biometric/RFID reader
Door controller functionality (relay, Door Position Sense and Request to Exit and OSDP) will be included in a future release.

Category	Parameter	Specification
RFID, only models HBR912 & HBR913	Protocol	13.56 MHz MIFARE/DESFire/DESFire EV1 /NFC/iClass/SEOS
	RFID Read Range	MIFARE/DESFire/EM/iClass/ISO15693 > 20 mm
Fingerprint	Image dimension	272 x 320 pixels
	Image bit depth	8bit, 256 grayscale
	Resolution	500 dpi
	Template	TBD / ISO 19794-2 / ANSI 378
	Extractor / Matcher	MINEX certified and compliant
	Template on card	Supported on SEOS cards (2 templates per card)
	Live Finger Detection	Supported
Capacity	Max. User (HBR910, HBR912)	1 000
	Max. User (HBR911, HBR913)	5 000
	Max. Template	10 per Tagholder (person)
	Max. Text Log	1 000 000
General	CPU	1.2 GHz Quad Core
	Memory	2GB DDR3 RAM + 8GB eMMC
	RTC backup supply	Super Capacitor keeps clock running ~10 days with no power
	Operating Temperature	-20°C to +66°C
	Storage Temperature	-40°C to +80°C
	Operating Humidity	0% - 95%, non-condensing, at +40°C
	Dimensions (L x W x D)	222 mm x 50 mm x 59 mm
	Weight	380 g
	IP Rating	IP67
	IK Rating	IK08
	Certificates	CE
Interface	Ethernet	Supported (10/100 Mbps)
	Light Bar	RGB
	Sound	Buzzer, Single volume, single tone, 4 kHz piezo-electric
	*RS485 (OSDP)	1ch Master / Slave
	Wiegand	1ch Input / Output
	*TTL inputs	2 channels, 1 supervised
	*Relay	1 relay: COM, NO & NC
	Tamper	Supported (Optical)
Electrical	Power	12 VDC, 2A peak, ~ 1A continuous
	*TTL input levels	VIH Min. 3V; Max. 5V
	*TTL input pull-up	Internal resistive pull-up 4.7 kΩ
	Wiegand Output	VOH > 4.8 V, VOL > 0.2 V
	Wiegand Output Pull-up	Internal resistive pull-up 1 kΩ
	*Relay JRC-23FHS	1A/30V$_{DC}$, 0.3A/60V$_{DC}$, 0,5A/125V$_{AC}$

*The greyed items are reserved for a future revision of the product.

Hardware and platform compatibility

Hardware

The IBR Biometric Reader requires a Wiegand (or OSDP in the future) reader interface that integrates to the (Personnel Access Control System) PACS. The Impro Cluster Controller and Wiegand Reader modules provide the necessary system interface. Network connectivity (Ethernet) is required to distribute templates and to configure the IBR.

Platforms

Access Portal requires a PC with sufficient space to accommodate the SQL database – <u>see more details</u> on page 24.

System users can log on to a user interface via networked devices, such as Windows PCs, Android tablets and smartphones.

Context within the Access Portal System

This system diagram shows where Impro Biometric Readers will fit in an Access Portal System.
(Power supply connections are not shown.)
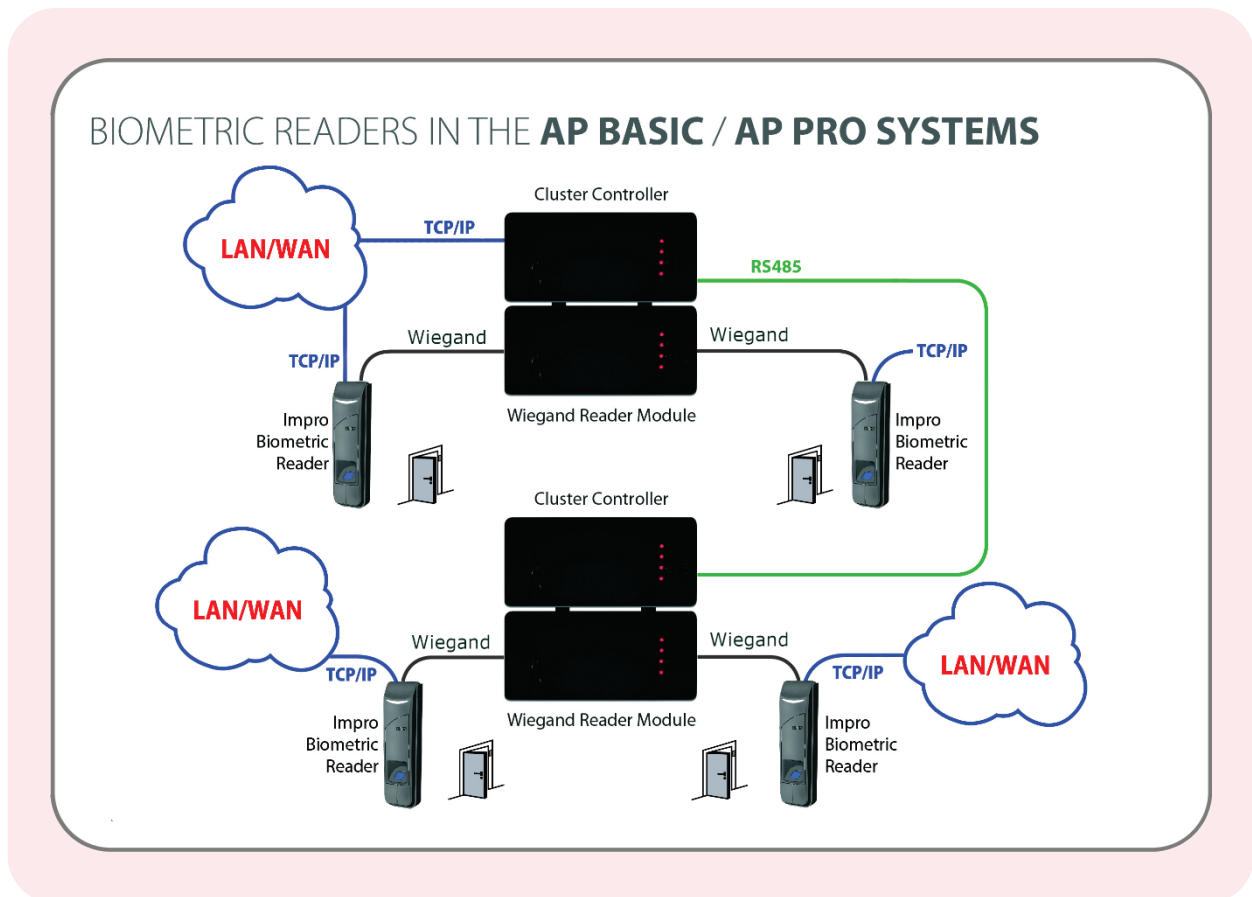
IBR Hardware installation

Mount and wire the IBR

Follow the steps shown on the Quick Start Guide (PLT-04644), included in the IBR's carton.

Update the site plan

Apply the spare fixed address label (for each reader) to the site plan to indicate its physical location.
You will need this plan when configuring the Access Portal software.

System Connections

Wiring Colour Codes

This list is also duplicated on the PLT-04744 package insert for your convenience

Note:

> Do NOT cut the Ethernet cable.

> Cut off the pigtail connector (used in the testing stage at the factory). Cut the wires close to the connector and only strip the wires needed for the installation.

CAUTION:

> Incorrect wiring may cause permanent damage to the reader.

Function Group	Wire Colour	Function	AWG	Max Length
RS-485 OSDP	Green	RS-485 A	22	1000 m
	Tan	RS-485 B		
	Black	RS-485 Ground		
*Relay	Grey	Relay – Common	22	150 m
	Yellow	Relay – Normally Open		
	Orange	Relay – Normally Closed		
*Inputs	Pink	REX Input (TTL)		
	Grey	DPS Input (Supervised)		
	Black	Input Ground		
Wiegand Port	White	Wiegand D0		
	Green	Wiegand D1		
	Brown	Wiegand RED		
	Orange	Wiegand Green		
	Yellow	Wiegand BUZ		
	Blue	Wiegand Hold		
	Violet	Wiegand TPR		
	Black	Wiegand Ground		
DC Power	Red	Power +12V		
	Black	Power Ground		
Network	**Connector**	**Function**	**Max Length**	
	RJ45 socket	Ethernet	100 m (CAT5E)	

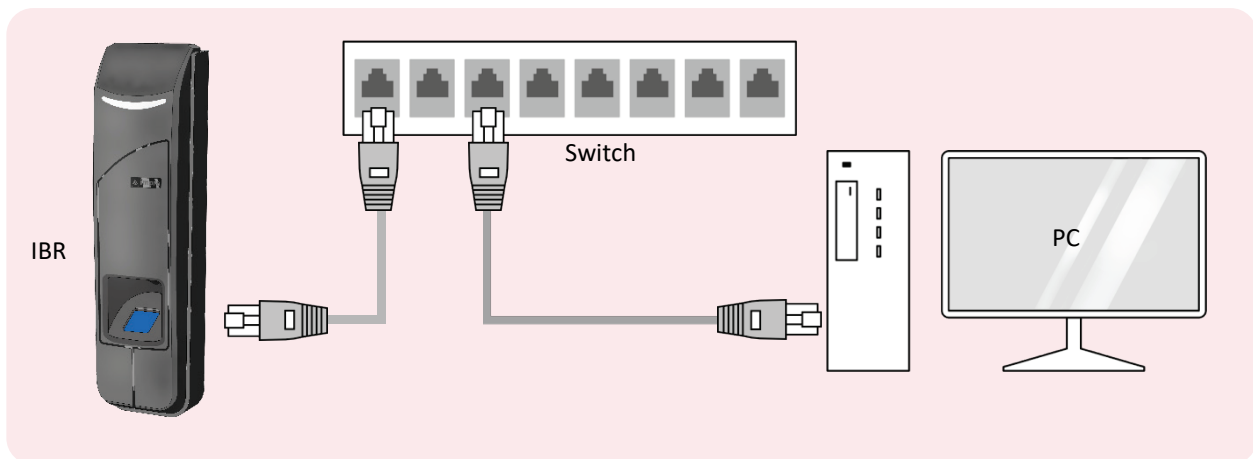*The greyed connections are reserved for future use.

Power Supply Connection
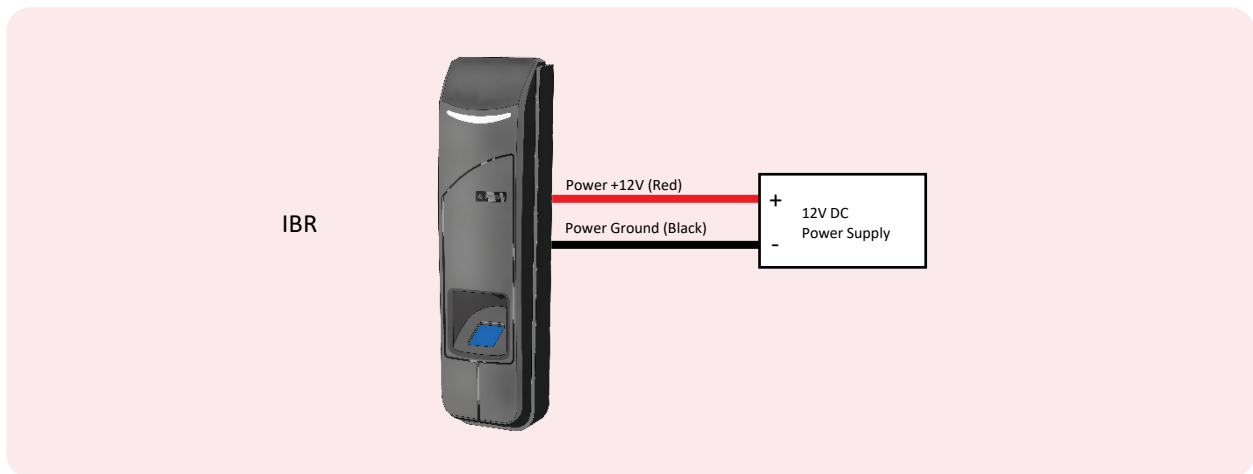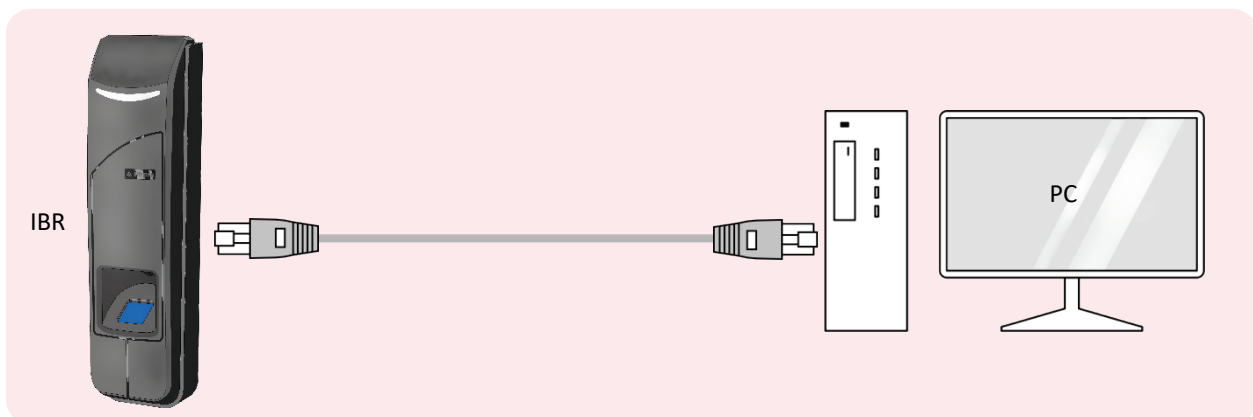

Power Supply considerations
- The IBR can draw up to 2A at 12VDC, and a separate 12VDC mains adaptor is recommended.
- Do NOT attempt to power the IBR from a Wiegand Reader terminal.

Network Connection

Connecting to an Ethernet Switch

Direct connection to a PC

Wiegand Reader Module Connections

These wires are all from the pigtail group labelled "Wiegand"
Do NOT use the Reader 12V terminal on the Wiegand Reader Module

Wiegand Reader Module Screw terminals		
D0	(Green)	
D1	(White)	
Red	(Brown)	
Green	(Orange)	
Buz	(Yellow)	
Hold	(Blue)	
TPR	(Violet)	
Ground	(Black)	

- The IBR must not be powered from the 12V Reader terminal on the Wiegand Reader Module

Resetting of all network and user settings

In the event where IP access to the IBR is not possible
(Static IP address falls outside of the subnet mask, for example)

Do the following:

1. Remove the IBR from its back plate.
2. Remove the label that covers the contacts.
3. With the unit powered up, short the contacts together using a suitable metal object.
4. The IBR will beep while you hold the short.
5. Maintain the short for a full 5 seconds (short beeps).
6. One long beep (2 seconds) confirms reset.

All user data will be erased and the IP address will be returned to the default.

(Firmware updates are not erased)

Adding the Impro Biometric Reader

(If Access Portal is not installed, first go to **Getting started with Access Portal**, on page 24.)

1. When logged into to the Access Portal Client screen, **navigate:** Setup -> Biometrics:
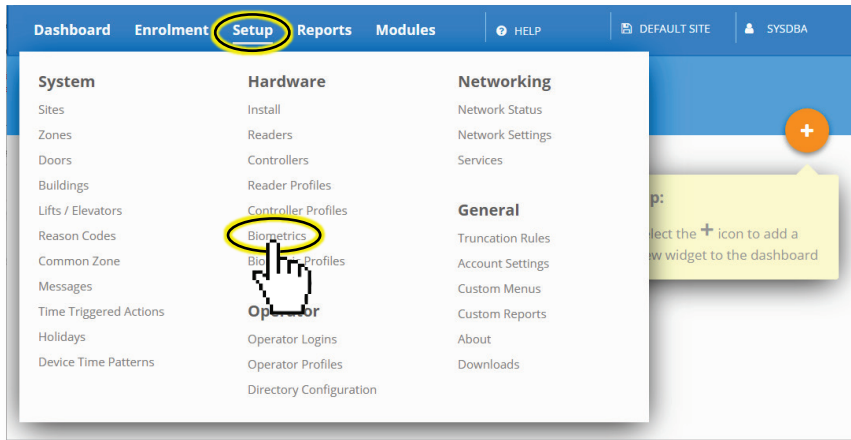
2. Click on INSTALL DEVICE - if this is not displayed click on 🔍 .
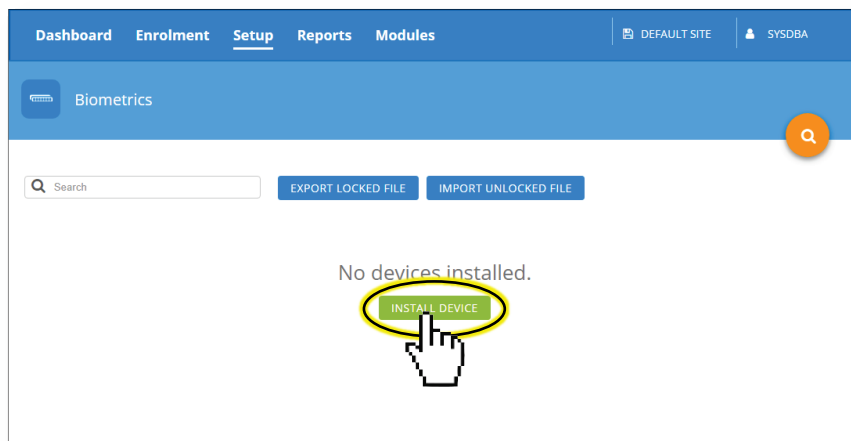
3. Enter the last few digits of the IBR's MAC address and click on SCAN NETWORK if the list is not populated.
4. Access Portal will list any devices that include those digits.
5. Select the HRB9XX you are looking for and press INSTALL DEVICE .
6. Click on FINISH when it is green.
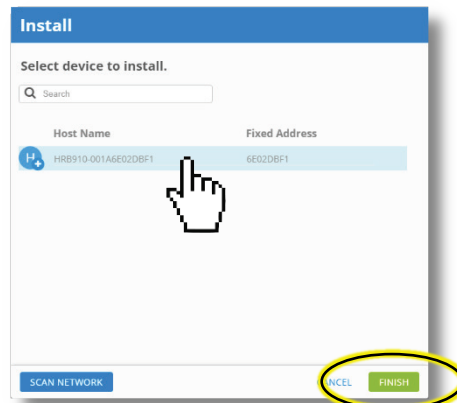
You are then given another chance to confirm that the selected device is the one you wish to add.

7. Click on **CONFIRM** to confirm your selection:

Confirm Install Request

Host Name
HRB910-001A6E02DBF1

IP Address
192.1.4.38

MAC Address
00-1A-6E-02-DB-F1

CANCEL   CONFIRM
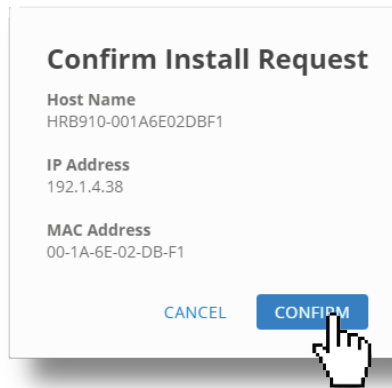
8. The IBR is successfully installed when you see a success message:

Success!
Install completed successfully
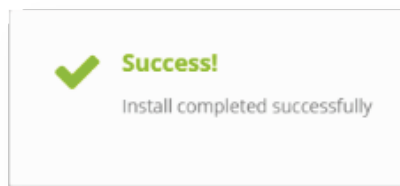
9. The installed IBR will now be listed on the Biometrics screen:

	Name	MAC Address	IP Address	Version	License	Queue		
H	HRB910-001A6E02DBF1	00-1A-6E-02-DB-F1	192.1.4.38	1.5.0.82	1K	0		
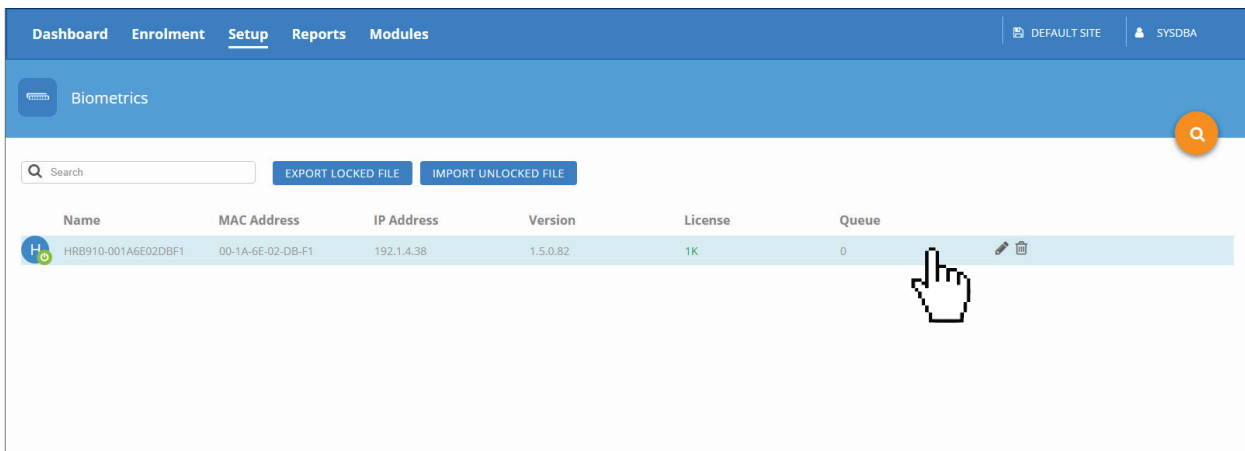
Editing the IBR's settings

1. You should now be in Biometrics view, where the screen lists the installed Biometric devices, if not, you get there by navigating: Setup -> Biometrics

2. Hover over the device in the list and click on the pencil icon 🖉 – or anywhere on the item name.
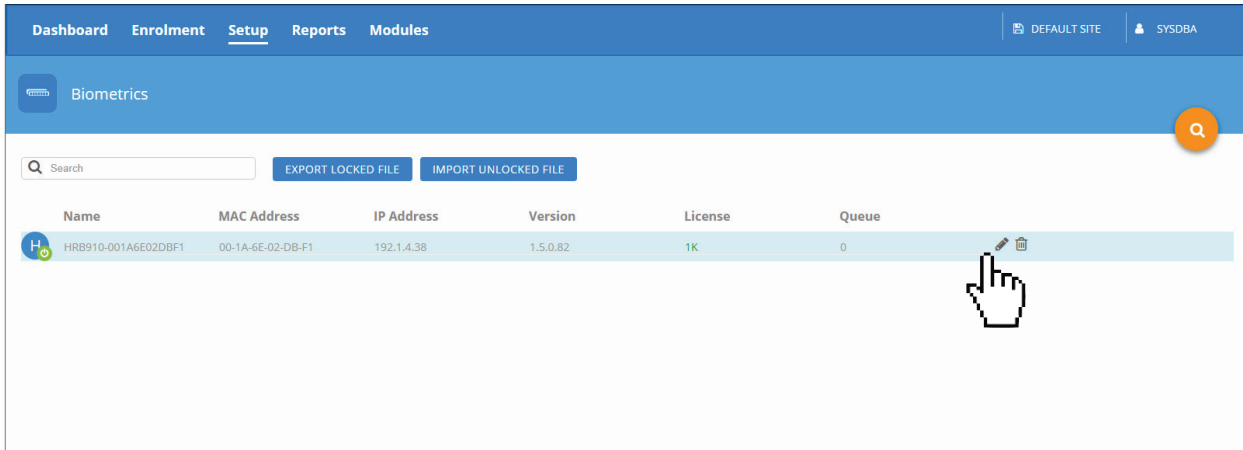
3. The Device Details Screen will open, where you can modify the Device Name and description to help you identify it when there are other IBRs like it on the system.

Biometric Reader Profile settings

4. Click on **EDIT PROFILE SETTINGS** to change the behaviour of this Biometric Reader:
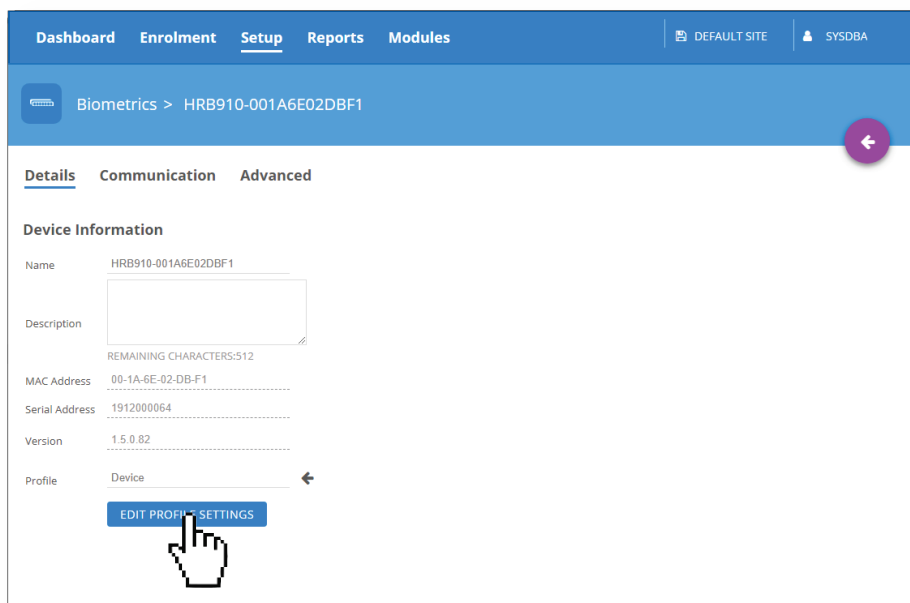
Setting the IBR's Authentication Mode

5. Click on the arrow next to the authentication mode setting
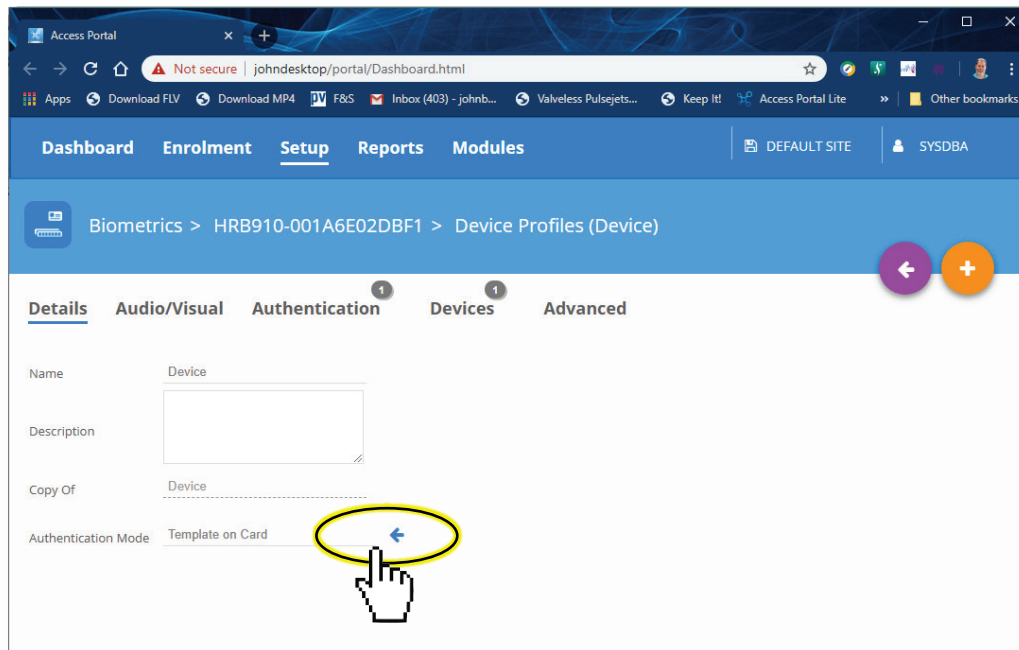
6. Choose the mode that features the reading combination that you require, for this example we choose Finger Only.
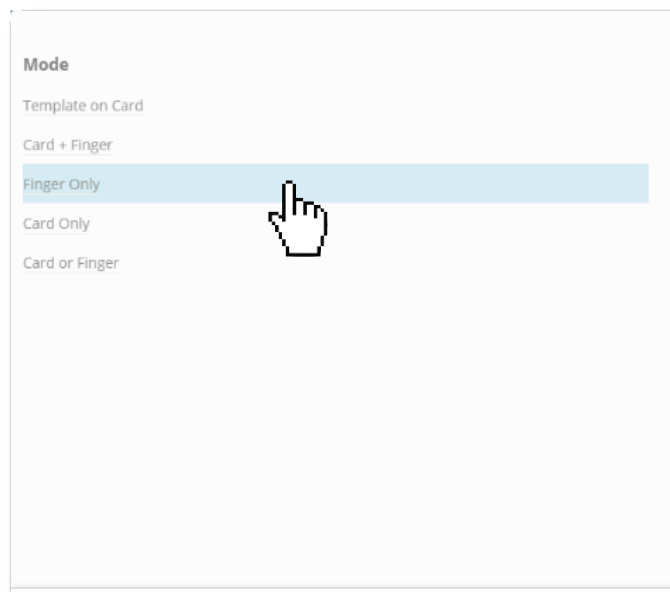
7. Click on ✔ to save the changes you make.
8. The LED indicator bar on the IBR will now change to blue, to indicate that the IBR is in Finger Only Mode.

Enrolling Tagholders (people)

1. Navigate: Enrolment -> Tagholders
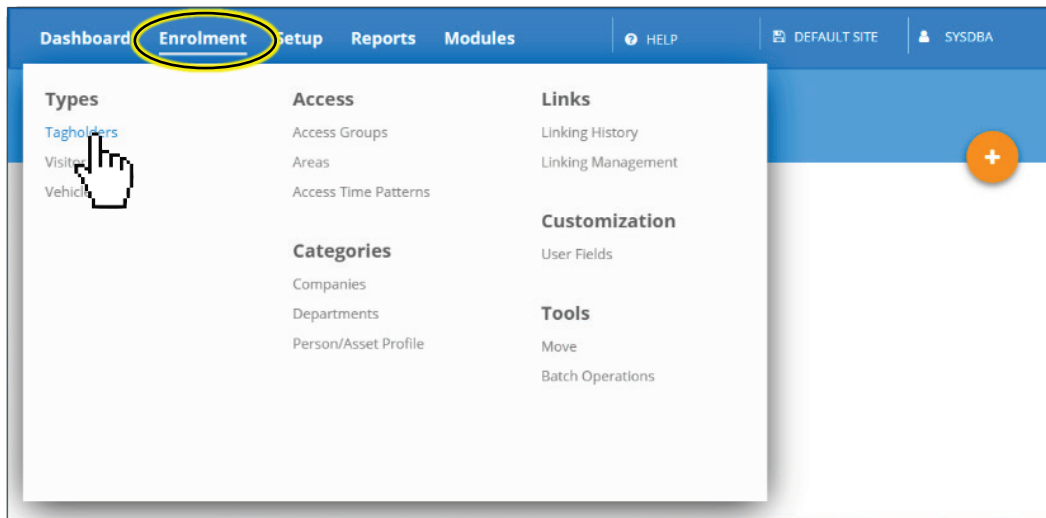
2. Click on ENROLL PERSON (or ➕, if there is already one or more tagholders listed.)
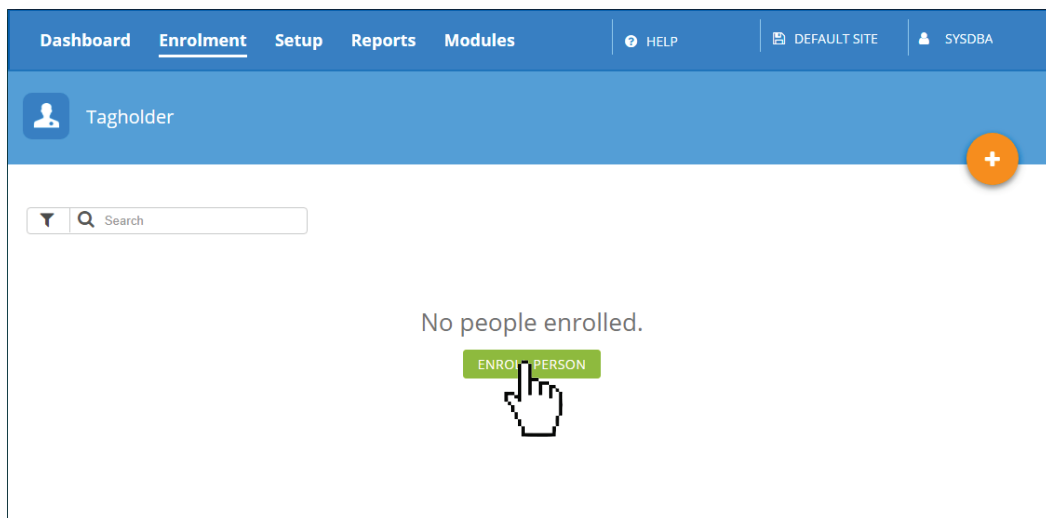
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3. Fill in all the compulsory fields (those fields with red lines).

4. ✅ will appear when any data has changed.
5. Click on ✅ to save the details, and more options will become available.

Adding fingerprints is next

Adding fingerprints to a tagholder (allocating tags to a person)

1. If not already on the Tagholder's screen, navigate: Enrolment -> Tagholder and select the person from the list.

   *If there are no tagholders you will need to add one before adding tags – go to **Enrolling Tagholders** on page 14.*

2. From the Tagholder's screen, click on Tags and then click on ADD TAGS .
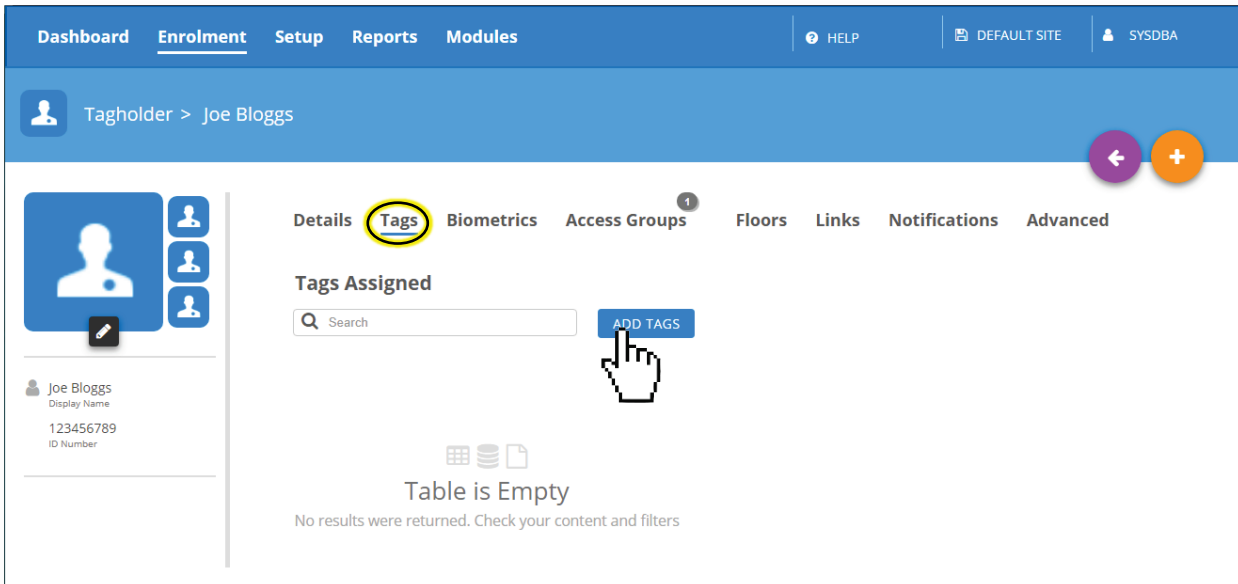
3. Click on ENROLLMENT WIZARD .
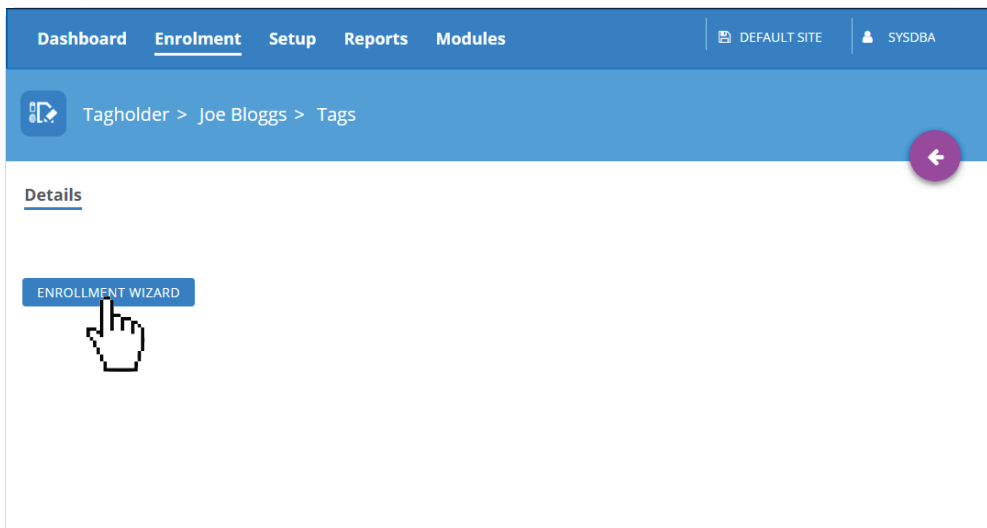
Continues on the next page…

4. Select "Enrol Card"

Enrollment Wizard

Tasks
Select a task to perform

🔍 Search

Name

Enroll Card

Disable Favourites   CANCEL   NEXT
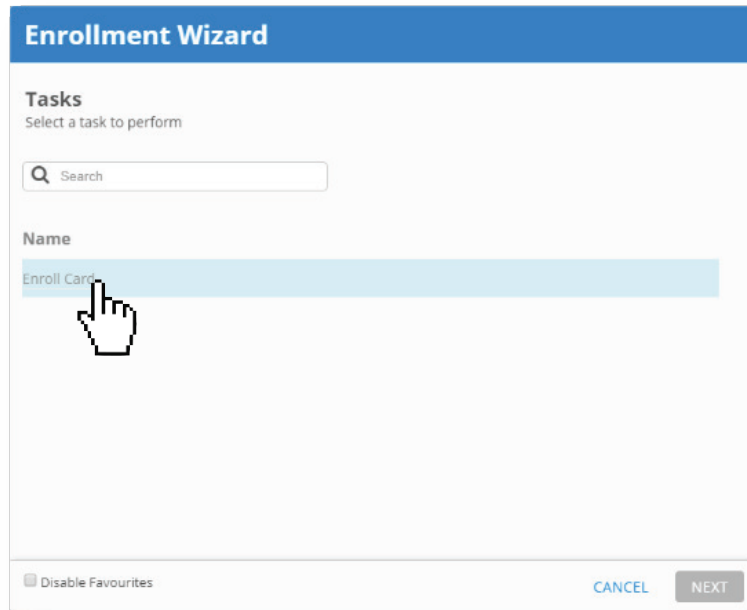
5. Select Random PAC (Personal Access Code)

Enroll Card

Choose how to perform the task

🔍 Search

Name

Impro Biometric Reader

Manually Enter (Code & Type)

Manually Enter (HID Credential)

Random PAC

Disable Favourites   CANCEL   NEXT
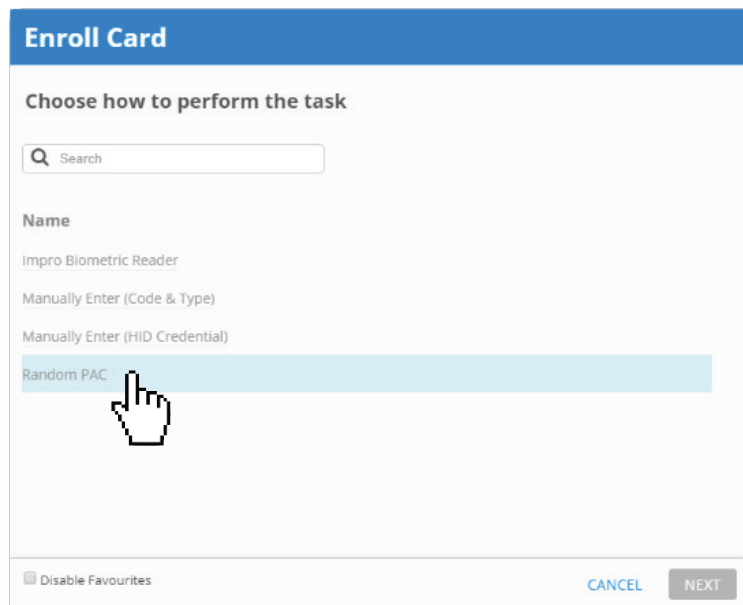
Continues on the next page…

6. Click on ✅ to save the randomly generated Personal Access Code.
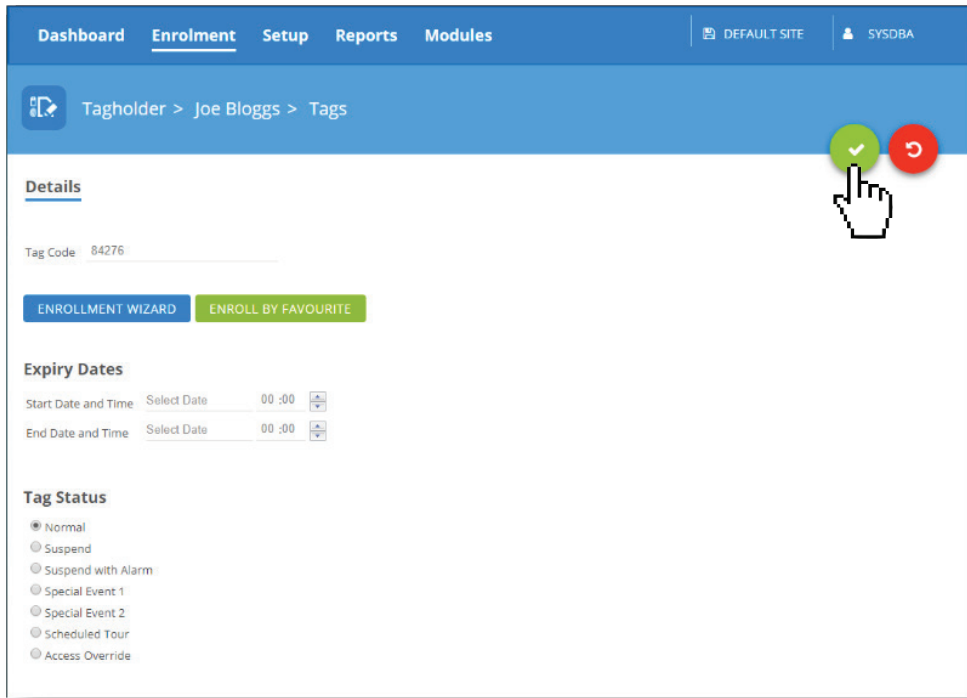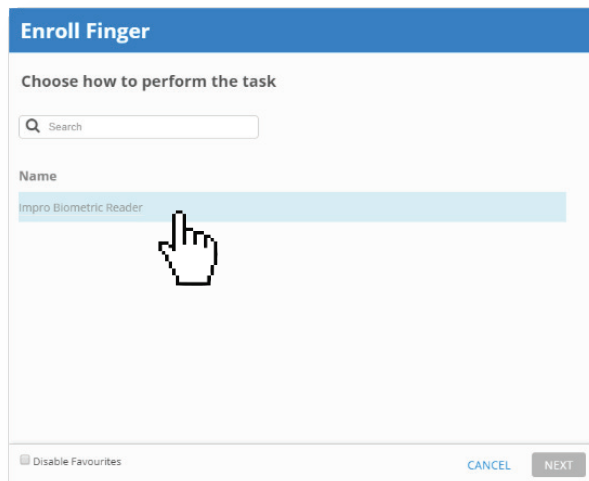

7. Select **ENROLLMENT WIZARD** again
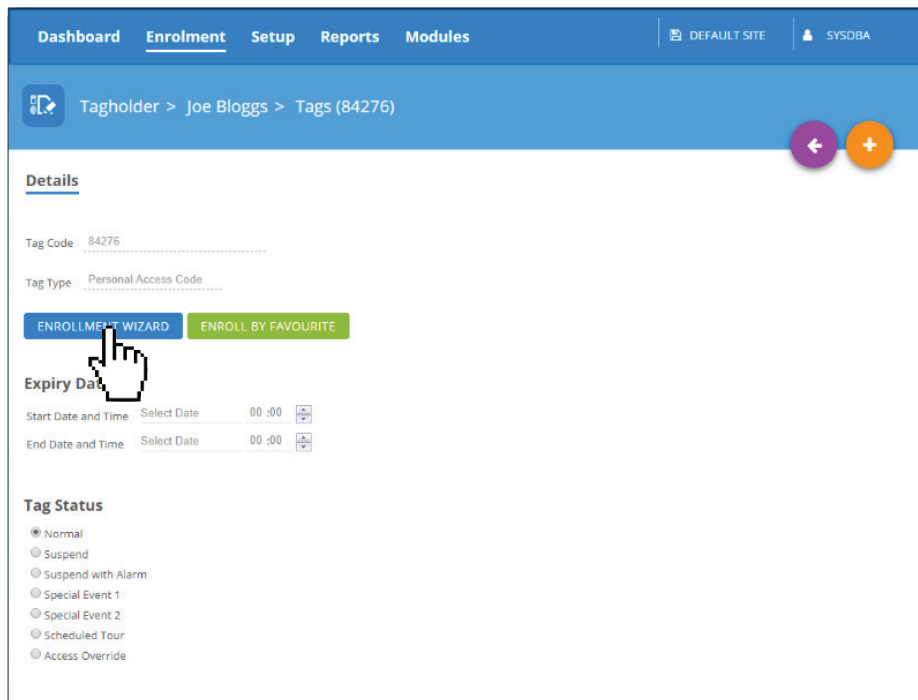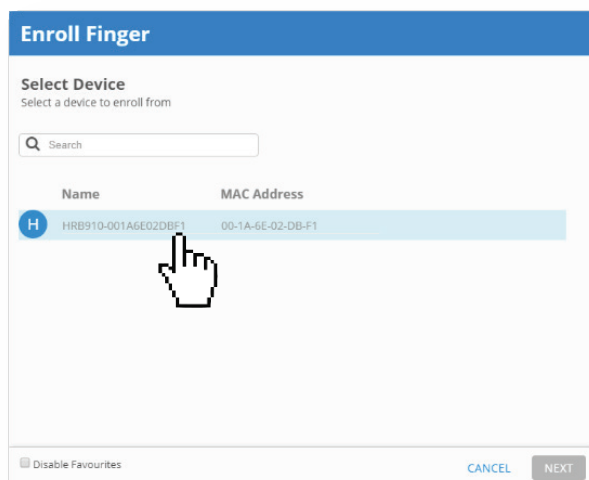

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8. Select Enrol Finger
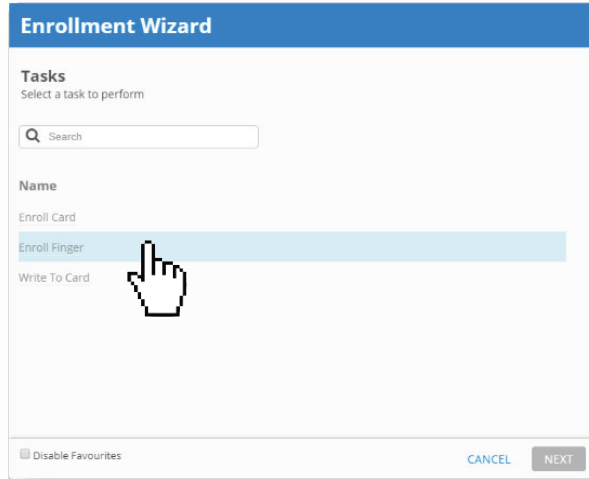
9. Select from the available reader models: "Impro Biometric Reader"

10. Select Device. (If there is more than one IBR, confirm the MAC address on the back of the enrolling IBR)
    *The **site plan** (spoken of on page 7) should show the fixed addresses and physical locations of all installed readers.*
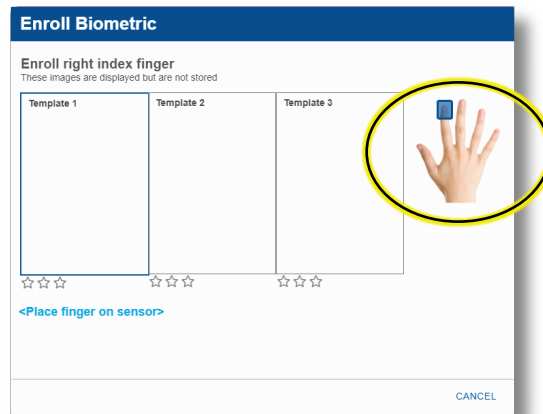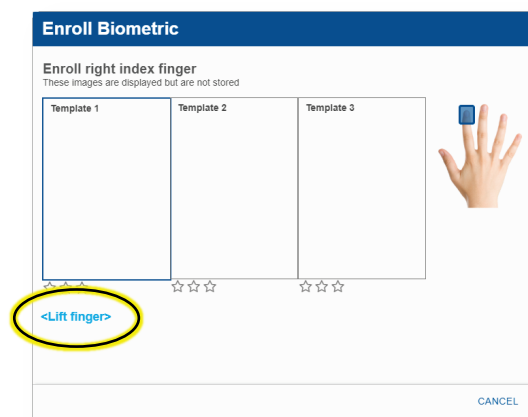

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11. Click on all the fingers you would like to enrol (you may enrol all ten if you wish.)
12. Click on ⬛NEXT⬛ when you are ready to present the first finger.
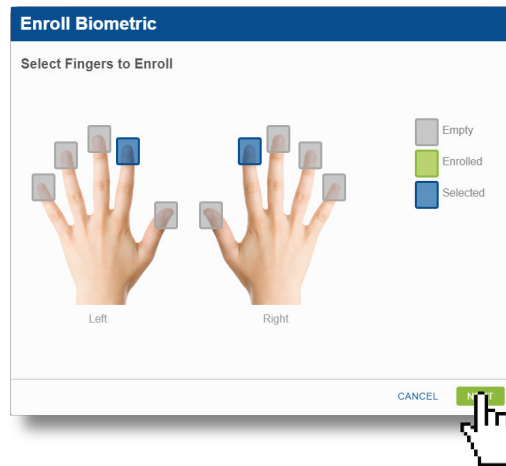
13. You will need to scan each finger THREE times.
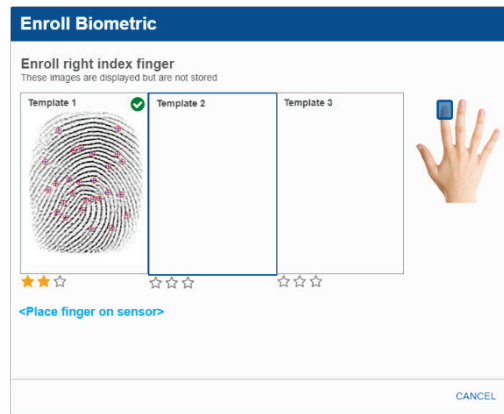14. Place the indicated finger on the sensor.

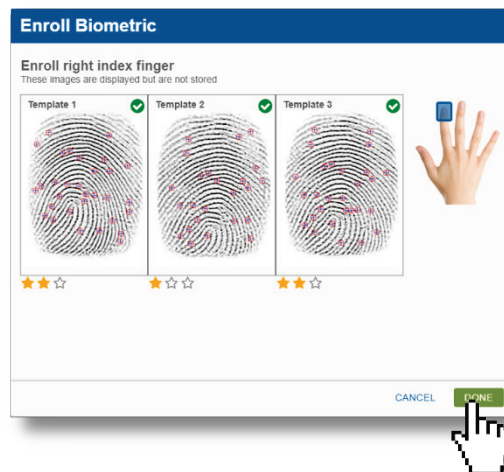15. Lift the finger when prompted:

Continues on the next page…

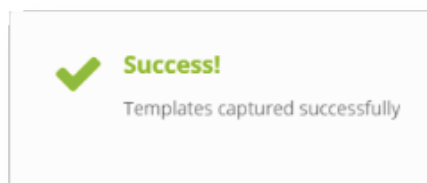16. The first scanned print will appear when the IBR is ready for the second scan of the SAME finger

17. When the finger has been scanned three times, click on [DONE] .
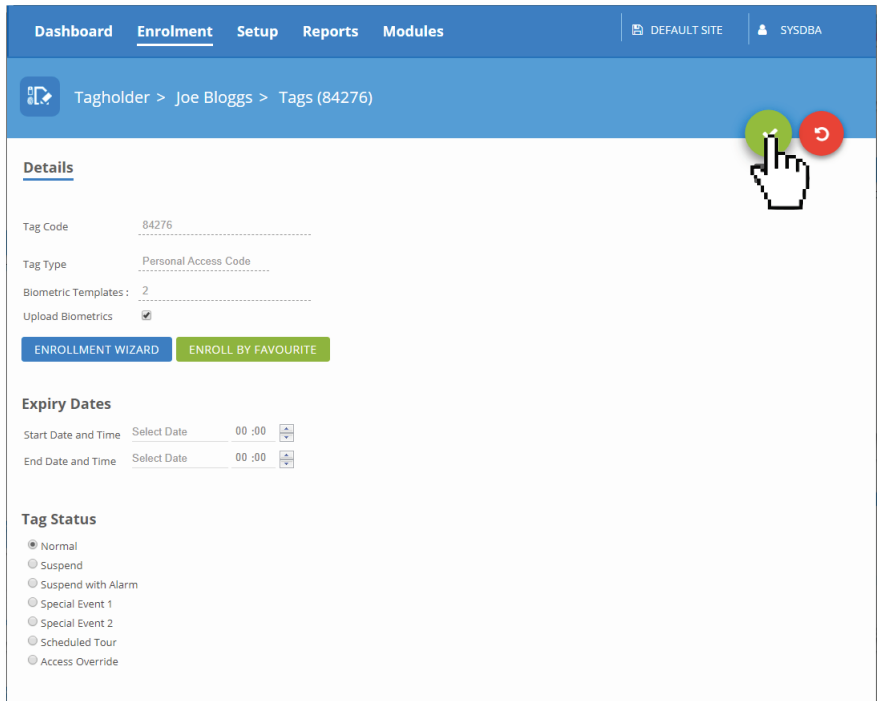

18. You will then be prompted for the next finger
19. Success is indicated when you are finished with the last finger (same as the steps shown above).

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20. Click on ✅ to save all the data for this tag

Now that fingerprint templates are on the system, the IBR will now be ready to scan fingers.
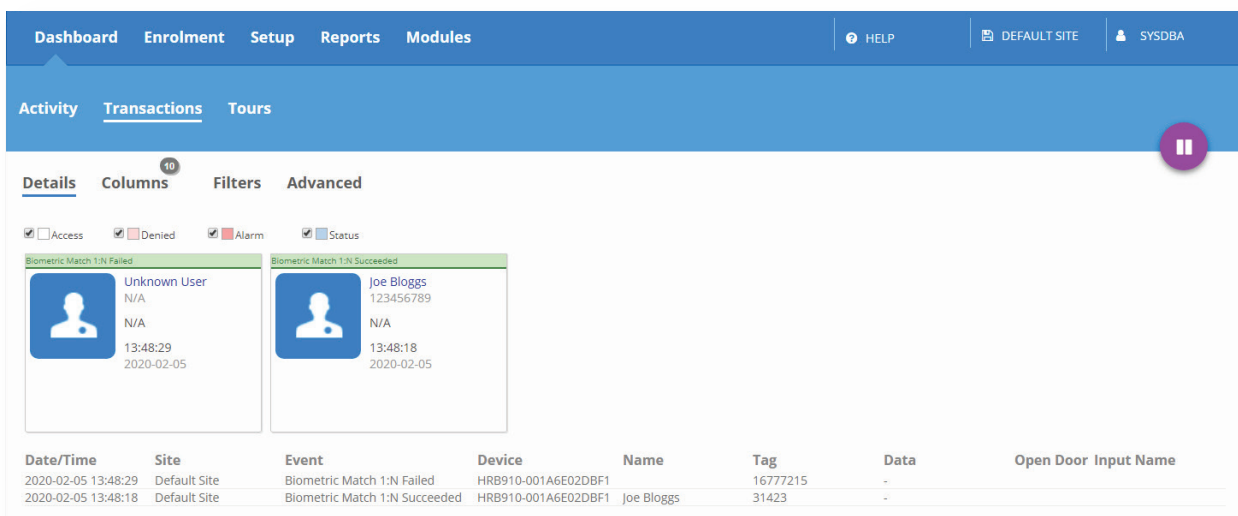

21. **Present an enrolled finger**: The IBR will beep and flash green momentarily.
    If a Wiegand Reader Module has been wired in and added to Access Portal, the door will unlock.

22. **Present a finger that is not enrolled**, and the IBR will beep and flash red
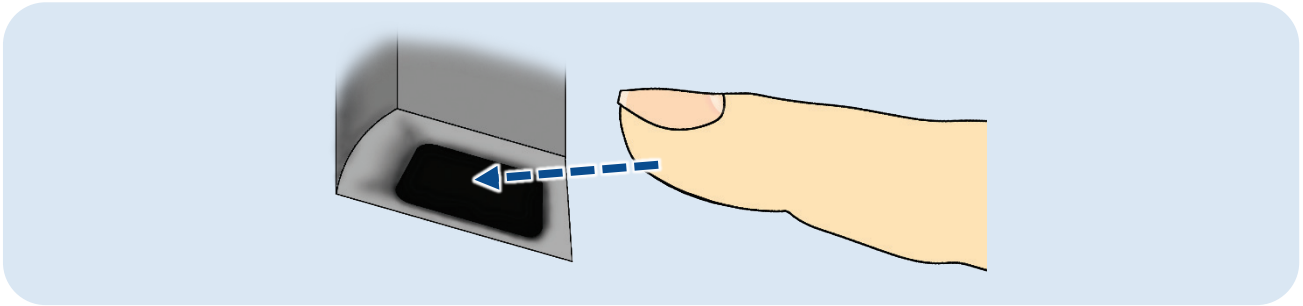
The transactions screen displays these two events.
**Navigate**: Dashboard -> Transactions.

End of this introduction

Biometric Scanning – Best Practices

1. Insert the finger (in one movement) with the contact area on the finger in the middle of the sensor window.
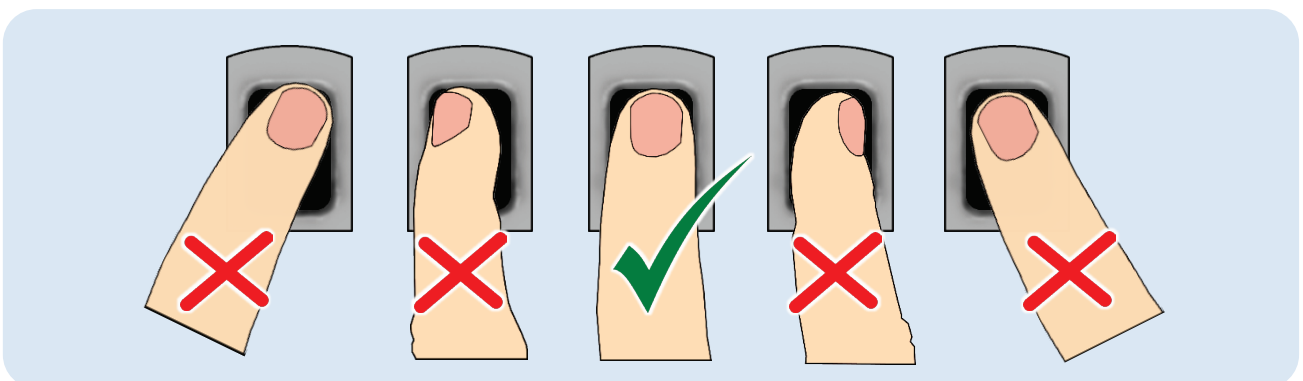
2. Apply a gentle, even pressure on the sensor to slightly flatten the finger and expose a useable area.
3. Keep still until prompted to remove your finger – or until the device accepts or rejects your finger.
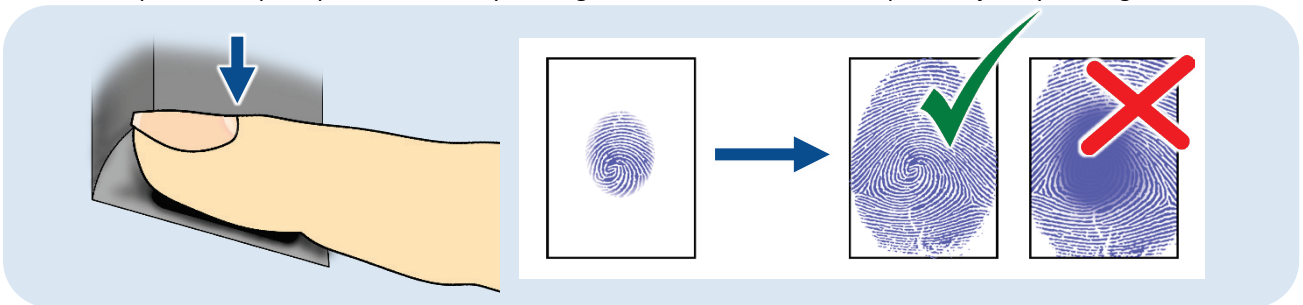
You may use all digits. The index, second and third fingers are preferred – for ease of presentation.
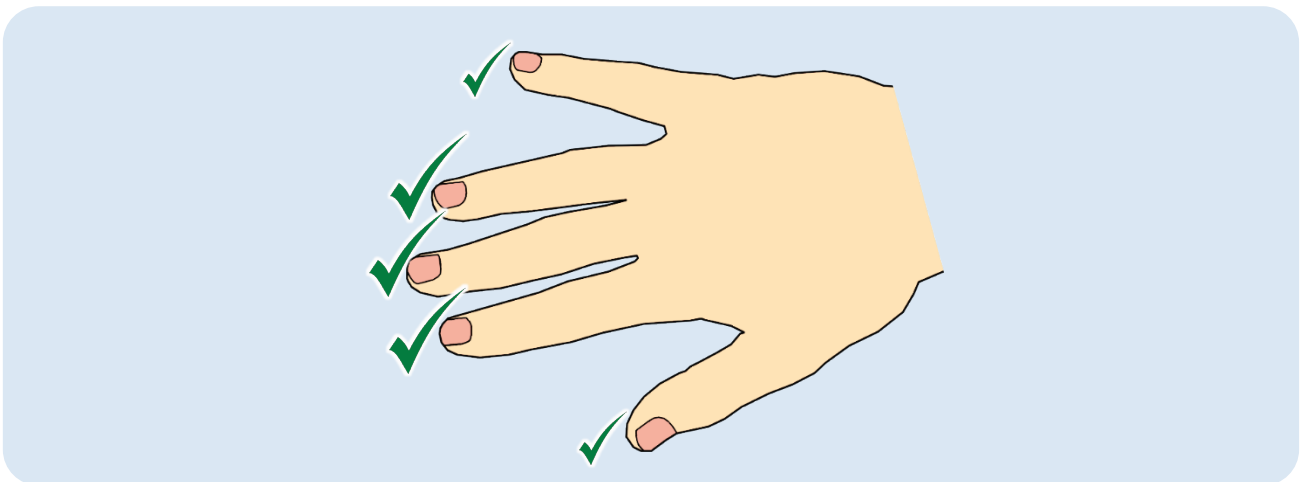
Present the finger straight, with the nail squarely on top

Access Portal System hardware requirements

Server Minimum Requirements

- Intel Xeon 3.4 GHz
- RAM 8 GB
- Available Disk Space 20 GB
- Screen Resolution 1280 x 800
- SQL Server 2014 Express
- Windows 7, SP2 (Minimum). Windows 10 (Preferred)

Client Minimum Requirements

- Intel Core i3 2.4 GHz
- RAM 4 GB
- Available Disk Space 2 GB
- Screen Resolution 1280 x 800
- Browser: Latest version of Chrome, Firefox, Internet Explorer or Safari

Portal Software installation

Impro Technologies offers access control software in different versions.
*Note that **AP Light** does NOT support Biometric Readers.*

1. Go to https://www.impro.net/software/, register and download the version of Access Portal of your choice.
2. Either burn the image onto a DVD, or save it on the PC, right-click on it and mount it.
3. Browse the DVD (or the mounted iso file, as Administrator) to find installation files and supporting documentation.
4. Run the Access Portal.exe file
5. Select options: Access Portal, Run SQL configuration and scripts, SQL 2014, and then Install.
6. Complete the installation of SQL Server and Access Portal.
7. Launch Access Portal Server by double-clicking on the Access Portal icon ( ) on the desktop.
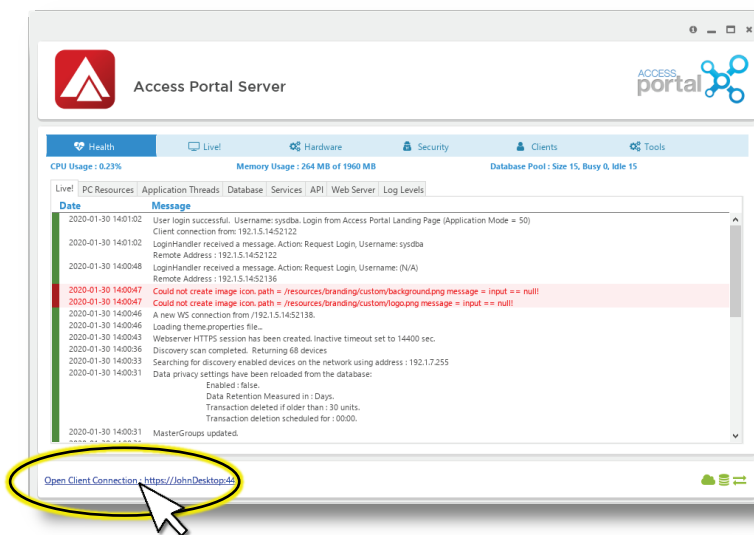
8. Open the Client Connection using the link at the bottom of the Access Portal Server Dialogue

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9. Log in using:

- Username: sysdba
- Password: masterkey

Note:

There may be some menu options shown in this manual that do not appear on your Access Portal application.
More functions become available when you purchase licenses, the Enterprise level licence opens up all functionality.

10. Turn to page 10 to **add the Impro Biometric Reader** to Access Portal and get started using the Access Portal Client Interface.

Help

Click on , at the top-right of the screen to learn about the options available on the current screen.

Video Tutorials

Coming soon, these online video tutorials will show you how to access and set up many more of Access Portal's functions.